

What Is Claimed Is:

1. A sensor element, comprising:

a measurement area;

a lead wire area;

a measurement device arranged in the measurement area; and

at least one lead wire having a first electric resistance to the measurement device and being provided in the lead wire area, wherein:

the first electric resistance has a positive temperature coefficient in at least some areas,

the lead wire area has at least one second electric resistance that has a negative temperature coefficient,

at least the first electric resistance, the at least one second electric resistance, and a third electric resistance of the measurement device form a total resistance, and

the positive temperature coefficient and the negative temperature coefficient are coordinated so that the total resistance remains at least approximately constant when there is a change in a temperature distribution in the lead wire area.

2. The sensor element according to claim 1, wherein:

the sensor element is disposed in a gas sensor for determining a physical quantity of a gas component in an exhaust gas of an internal combustion engine.

3. The sensor element according to claim 1, wherein:

the measurement device includes a first electrode and a second electrode in the measurement area of the sensor element and a solid electrolyte arranged between the first electrode and the second electrode,

a first lead wire of the at least one lead wire leads to the first electrode,

a second lead wire of the at least one lead wire leads to the second electrode,

the first lead wire and the second lead wire are arranged in the lead wire area,

and

the solid electrolyte is arranged between the first lead wire and the second lead wire.

4. The sensor element according to claim 3, wherein:

the first electric resistance having the positive temperature coefficient is formed by resistances of the first lead wire and the second lead wire,

the at least one second electric resistance having the negative temperature coefficient corresponds to a resistance of the solid electrolyte body between the first lead wire and the second lead wire, and

a resistance of the first electrode, a resistance of the second electrode, and the resistance of the solid electrolyte in the measurement area enter into the third resistance.

5. The sensor element according to claim 1, wherein:

the sensor element is secured in a housing, and

the change in the temperature distribution in the lead wire area can be attributed to a heating of the housing.

6. The sensor element according to claim 3, wherein:

in a portion of the lead wire area that is subject to a greatest heating, a section of the first lead wire and a section of the second lead wire having a higher resistance in comparison with a resistance of the first lead wire and a resistance of the second lead wire outside the sections of the first lead wire and the second lead wire are provided.

7. The sensor element according to claim 1, further comprising:

a heating element that heats up the sensor element in the measurement area to a predetermined temperature and enters into a regulation of the total resistance.

8. The sensor element according to claim 3, wherein:

the total resistance is determined by applying an a.c. voltage between the first lead wire and the second lead wire, and

a total a.c. voltage resistance is determined by an electronic measurement device arranged outside the sensor element.

9. The sensor element according to claim 7, wherein:

the predetermined temperature in the measurement area remains at least largely constant when there is the change in the temperature distribution because of an external influence acting on the lead wire area.

10. The sensor element according to claim 3, wherein:

the first electrode, the second electrode, and the solid electrolyte form an electrochemical cell,

the first electrode is a Nernst electrode arranged in a measurement gas space,

and

the second electrode is a reference electrode arranged in a reference gas space.

11. The sensor element according to claim 10, wherein:

the electrochemical cell includes a Nernst cell of one of a broadband probe and a lambda probe.

12. The sensor element according to claim 3, wherein:

the first lead wire and the second lead wire include in at least some areas thereof a cermet containing Al_2O_3 as a ceramic component and containing platinum and palladium as metallic components, and

a palladium content is 2 to 50 percent by weight based on the metallic components of the cermet.

13. The sensor element according to claim 12, wherein:

the palladium content is 10 percent by weight.

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